

The new Standard of Good Practice for Maintenance Management became effective on December 1, 2005. The requirements for compliance with the new Standard of Good Practice are identified in Washington Administrative Code (WAC) 136-11.

Presented below is the Annual Certification Form which will be used by the County Road Administration Board in reviewing compliance with WAC 136-11. This form is essentially a checklist for the requirements as identified in WAC 136-11 and can provide a useful guide to meeting these requirements. Presented on the pages following the form are examples of documents that provide evidence that the requirements are met.

ANNUAL CERTIFICATION—STANDARD OF GOOD PRACTICE MAINTENANCE MANAGEMENT WAC 136-11

The following information is provided for the annual review of county compliance with the requirements of WAC 136-11-040. The information provided herein is current as of December 31, 2008, and summarizes Maintenance Management activities for Calendar Year 2008.

Yes	No	In accordance with WAC 136-11-040, maintenance management procedures have been used by this county to guide cost-effective maintenance and preservation activities on county roads in the previous calendar year.
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_____ County's maintenance management practices meet the following requirements, in accordance with WAC 136-11-040:

Yes	No	(1)	An inventory of significant maintainable road features (physical assets) has been prepared and/or updated.
Yes	No	(2)	Activity Guidelines have been prepared, reviewed and/or updated for all significant maintenance activities.
Yes	No	(3)	A work program and budget has been prepared for maintenance activities planned in the year. This work program and budget is based upon the road features to be maintained, the types and amounts of maintenance work planned and the costs for the labor, equipment and materials needed to complete the work.
Yes	No	(4)	Labor, equipment and material resource requirements needed to accomplish the planned workload are identified.
Yes	No	(5)	Work scheduling procedures are identified, documented, and utilized in carrying out the maintenance work program.
Yes	No	(6)	Reports showing work accomplishment and cost have been prepared and reviewed by managers and supervisors.

I hereby certify to the accuracy of the responses given herein:

County

Signature of County Engineer

Date

Maintenance Feature Inventory

MAINTENANCE FEATURE INVENTORY DATA COUNTY ROAD ADMINISTRATION BOARD Maintenance Management Program

FEATURE CODE	FEATURE NAME	MEAS UNITS	MGMT UNIT	TOTAL INVENTORY
2310	gravel road	miles	COUNTY	1,131
2320	paved road	miles	COUNTY	648
2330	shoulder	miles	COUNTY	1,296
2340	total road	miles	COUNTY	1,779
2410	ditch	miles	COUNTY	1,296
2420	culvert	each	COUNTY	2,669
2430	catch basin	each	COUNTY	
2510	bridge	each	COUNTY	124
2520	other structure	each	COUNTY	124
2610	sidewalk	feet	COUNTY	
2620	path	feet	COUNTY	
2630	street light	each	COUNTY	
2640	signs	each	COUNTY	45,000
2650	guardrail	feet	COUNTY	3,240
2660	striping	miles	COUNTY	1,944
2910	year	year	COUNTY	1

Notes:

- 1 Maintenance features are the assets or things that get maintained
- 2 The management unit (MGMT UNIT) may be divided into the various county districts or maintenance areas with the inventory totals for each area identified

	WASHINGTON COUNTIES Maintenance Management MAINTENANCE ACTIVITY PLANNING GUIDELINE											
	ACTIVITY NAME: <i>GRADING</i>											
	ACTIVITY CODE: <i>311 (542.311)</i>											
ACTIVITY DESCRIPTION: <i>Blading, shaping and smoothing gravel roads to restore proper grade, shape and drainage.</i>												
MONTHLY SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X				X	X	X
SCHEDULING CONSIDERATIONS: <i>Grading is performed when ruts, grooves, or holes cause inadequate drainage, uncomfortable ride, or poor road conditions. The frequency of grading depends upon weather, traffic, and surface stability. Schedule grading to take advantage of natural moisture.</i>												
PERSONNEL						WORK CONSIDERATIONS						
CODE	CLASS		QTY		<ol style="list-style-type: none"> 1. Establish traffic control as necessary. 2. Grader generally makes two or more passes per lane mile and back blades as necessary. 3. Road should be worked in increments less than 2 miles and when adequate moisture exists. 							
L203	<i>Maint Worker III</i>		<i>1</i>									
EQUIPMENT												
CODE	CLASS		QTY									
E101	<i>Grader</i>		<i>1</i>									
E102	<i>Pickup</i>		<i>1</i>									
						REFERENCE AND SAFETY						
MATERIALS												
CODE	CLASS		QTY									
AVERAGE DAILY ACCOMPLISHMENT						MAINTENANCE FEATURE INVENTORY						
QUANTITY		WORK UNIT				FEATURE		UNIT		CODE		
<i>12</i>		<i>pass miles</i>				<i>gravel road</i>		<i>miles</i>				
PLANNING GUIDELINE APPROVAL												
BY:						EFFECTIVE DATE:				PREV:		

WASHINGTON COUNTIES

Maintenance Management

ACTIVITY COSTING -- STANDARD DAILY COSTS

ACTIVITY NAME: GRADING

ACTIVITY CODE: 311

MEASUREMENT UNIT: pass mile

PERSONNEL/CREW COSTS				HOURLY RATE			% TOTAL COST	
CODE	CLASS	QTY	HOURS		COST			
L203	Maintenace Worker III	1	8	28.64	229.12			
CREW TOTAL		1	8		229.12		47%	

EQUIPMENT				HOURLY RATE			% TOTAL COST	
CODE	CLASS	QTY	HOURS		COST			
E101	Road Grader	1	8	28.00	224.00			
E102	Pickup	1	8	4.00	32.00			
EQUIPMENT TOTAL		2	16		256.00		53%	

MATERIALS		QTY	UNIT COST			% TOTAL COST	
CODE	CLASS			COST			
MATERIALS TOTAL		0	0		0.00		0%

CONTRACT SERVICES					0.00		0%	
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SUMMARY:				
TOTAL DAILY COST			485.12	
AVERAGE DAILY ACCOMPLISHMENT			12	pass miles
UNIT COST (\$/UNIT)			40.43	

WORK PROGRAM AND BUDGET

Code	Activity Name	Inventory Quantity	Inventory Unit	Work Unit	Service Level (work unit per Inventory unit)	Percent Desired	Annual Work Quantity	Average Daily Prod	Crew Days	Crew Size	Person Days	Cost Distribution			Total Budget	2001* Actual Expend
												Labor	Equip	Mat/Oth		
542.300	Roadway														1,842,689	1,838,023
.311	Grading	1131	gravel road mile	pass mile	8.00	100%	9,048	12	754	1	754	173,420	168,896	0	342,316	
.312	Grading with roller	1131	gravel road mile	pass mile	0.00	100%	0	12	0	4	0	0	0	0	0	
.313	Gravel Replacement	1131	gravel road mile	cubic yard	5.00	100%	5,655	150	38	6	226	48,030	38,906	67,860	154,796	
.321	Pothole Repair	648	paved road mile	ton	0.90	100%	583	2	292	2	583	133,553	18,662	23,328	175,543	
.322	Crack Sealing	648	paved road mile	gallons	5.00	100%	3,240	24	135	3	405	92,745	19,440	29,430	141,615	
.323	Blade Patching	648	paved road mile	ton	1.00	100%	648	75	9	10	86	14,532	14,031	46,397	74,961	
.324	Seal Coating / BST	648	paved road mile	road mile	0.20	100%	130	3	43	21	907	172,498	131,328	375,840	679,666	
.331	Shoulder Maintenance	1296	shoulder mile	shoulder mile	0.40	100%	518	6	86	4	346	71,366	46,310	0	117,677	
.332	Shoulder Repair	1296	shoulder mile	cubic yard	0.50	100%	648	8	81	4	324	66,096	38,880	7,776	112,752	
.390	Other Roadway Maint.	1779	road mile	hours	1.00	100%	1,779	16	111	2	222	39,805	3,558	0	43,363	
542.400	Drainage														269,960	270,397
.411	Ditching w/grader	1296	ditch mile	ditch mile	0.10	100%	130	3	43	4	173	35,251	21,427	0	56,678	
.412	Ditching w/ditcher	1296	ditch mile	ditch foot	10.00	100%	12,960	500	26	6	156	33,022	22,810	0	55,832	
.421	Culvert cleaning	2669	culvert	culvert	1.00	100%	2,669	20	133	2	267	54,437	4,270	0	58,707	
.422	Culvert repair/repl.	2669	culvert	lineal feet	0.20	100%	534	40	13	6	80	15,664	9,073	6,404	31,141	
.430	Catch basin cleaning	0	catch basin	each	0.00	100%	0	20	0	4	0	0	0	0	0	
.490	Other Drainage Maint.	1779	road mile	hours	1.00	100%	1,779	16	111	2	222	45,365	22,238	0	67,602	
542.500	Structures														4,499	4,460
.511	Bridge Maint	124	bridges	hours	0.50	100%	62	24	3	3	8	1,516	661	129	2,307	
.512	Bridge Repair	124	bridges	hours	0.25	100%	31	24	1	3	4	758	331	129	1,218	
.590	Other Bridge/Str Maint	124	bridges	hours	0.20	100%	25	24	1	3	3	607	265	103	974	
542.600	Traffic														670,280	
.610	Sidewalks	0	sidewalks	hours	0.00	100%	0	16	0	2	0	0	0	0	0	
.620	Special Purpose Paths	0	paths	hours	0.00	100%	0	16	0	2	0	0	0	0	0	
.630	Street Lighting	0	lights	hours	0.00	100%	0	16	0	3	0	0	0	0	0	
.640	Traffic Control Devices				1.00			10				0	0	0	0	263,348
.641	Sign Maintenance	45000	signs	signs	0.01	100%	450	10	45	2	90	20,610	128	4,500	25,238	
.642	Guardrail Maint/Repair	3240	guardrail	lineal feet	0.50	100%	1,620	60	27	2	54	12,366	128	5,400	17,894	
.643	Traffic Markings	1944	miles	lineal feet	1560.00	100%	3,032,640	10000	303	2	607	138,895	400	242,611	381,906	
.660	Snow & Ice Control	1779	road mile	hours	2.20	100%	3,914	8	489	1	489	112,033	224	58,707	170,964	172,718
.670	Street Cleaning	1779	road mile	hours	1.30	100%	2,313	32	72	4	289	55,360	4,128	14,454	73,943	74,951
.690	Other Traffic Maint	1779	road mile	hours	0.00	100%	0	8	0	2	0	0	336	0	336	
542.700	Roadside Development														247,250	411,598
.712	Brush Control (Mech)	1296	shoulder mile	shoulder mile	0.15	100%	194	3	65	3	194	38,038	1,632	0	39,670	
.713	Brush Control (Man)	1296	shoulder mile	hours	2.00	100%	2,592	48	54	6	324	63,396	2,880	0	66,276	
.721	Chem Veg Control (Mech)	1296	shoulder mile	shoulder mile	0.02	100%	26	12	2	2	4	881	720	5,184	6,785	
.722	Chem Veg Control (Man)	1296	shoulder mile	hours	0.00	100%	0	16	0	2	0	0	832	0	832	
.731	Landscape Maint	1296	shoulder mile	hours	1.00	100%	1,296	16	81	4	324	59,616	256	6,480	66,352	
.751	Litter Control	1296	shoulder mile	hours	0.90	100%	1,166	16	73	2	146	26,827	64	2,916	29,807	
.761	Slope Repair	1296	shoulder mile	hours	1.00	100%	1,296	32	41	4	162	33,048	2,240	0	35,288	
.790	Other Roadside Maint	1296	shoulder mile	hours	0.00	100%	0	16	0	4	0	0	2,240	0	2,240	
542.800	Ancillary Operations	1	year	hours	0.00	100%					0	0	0	0	0	
542.900	Administration							8							173,664	175,093
.910	Maint Admin	1	year	hours	5600.00	100%	5,600	8	700	1	700	173,600	32	0	173,632	
.920	Shop / Yard	1	year	hours	0.00	100%	0	8	0	2	0	0	0	0	0	
.930	Road Patrol	1	year	hours	0.00	100%	0	8	0	1	0	0	32	0	32	
.990	Other Admin	1	year	hours	0.00	100%	0	8	0	1	0	0	0	0	0	

8,150
Equiv staff 31 3,208,343

* From 2001 County Report to the Secretary of Transportation: 3,210,588

LABOR REQUIREMENTS REPORT (SUMMARY)
COUNTY ROAD ADMINISTRATION BOARD
Maintenance Management Program

Mgt Unit: County

CODE	ACTIVITY NAME	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL NEED	TOTAL COST
L201	Maint Worker I														
	PERSON DAYS REQUIRED	0	0	0	0	0	0	0	0	4	90	89.6	40.8	224.4	35904
	AVG NO STAFF REQUIRED:	0	0	0	0	0	0	0	0	0.2	5	4.7	2.2	1	
L202	Maint Worker II														
	PERSON DAYS REQUIRED	360	383.3	278.5	243.7	318.9	395.5	533.9	411.7	265.5	386.8	385.7	290.4	4253.9	760937
	AVG NO STAFF REQUIRED:	18.2	23.7	14.7	12.9	18.6	22	28.2	21.8	13.4	21.5	20.4	15.4	19.1	
L203	Maint WorkerIII														
	PERSON DAYS REQUIRED	83.8	95.3	149.2	147.4	154	200.6	313.1	220.3	86.1	193.9	193.4	131.9	1969	451138
	AVG NO STAFF REQUIRED:	4.2	5.9	7.9	7.8	9	11.1	16.6	11.7	4.3	10.8	10.2	7	8.9	
L206	Sign Tech														
	PERSON DAYS REQUIRED	11.8	12.4	12.4	12.2	12.8	12.8	12.8	12.8	198.2	290.4	290.4	198	1077	246761
	AVG NO STAFF REQUIRED:	0.6	0.8	0.7	0.6	0.7	0.7	0.7	0.7	10	16.1	15.4	10.5	4.8	
L209	Supervisor														
	PERSON DAYS REQUIRED	52.8	52.8	52.5	52.5	51.8	51.8	51.8	51.8	51.8	73.2	73.1	60.9	676.8	162432
	AVG NO STAFF REQUIRED:	2.7	3.3	2.8	2.8	3	2.9	2.7	2.7	2.6	4.1	3.9	3.2	3	
TOTAL COST:														1657172	

EQUIPMENT REQUIREMENTS REPORT (SUMMARY)
COUNTY ROAD ADMINISTRATION BOARD
Maintenance Management Program

Mgmt Unit: County

RESOURCE CODE	NAME		OCT	NOV	DEC	JAN	EQUIPMENT HOURS BY MONTH							TOTAL NEED	TOTAL COST
							FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
E101	Grader														
EQUIP HOURS REQUIRE	D	681.6	1280.8	301.6	301.6	603.2	677.6	1799.2	1189.6	688	87.2	87.2	87.2	7784.8	217974
AVG UNITS REQUIRED:		4.8	11.1	2.2	2.2	5	5.3	13.4	8.9	4.9	0.7	0.6	0.6	4.9	
E102	Pickup														
EQUIP HOURS REQUIRE	D	1732.8	2323.2	1312	1306.4	626.4	1792	2916	2388.8	1796	1432.8	1431.2	1338.4	21396	85582
AVG UNITS REQUIRED:		12.3	20.2	9.8	9.7	13.4	14	21.7	17.8	12.8	11.2	10.6	10	13.5	
E103	Dump truck														
EQUIP HOURS REQUIRE	D	356.0	399.2	936.8	929.6	951.2	1221.6	1149.6	268.8	274.4	964	960.8	566.4	8978.4	188547
AVG UNITS REQUIRED:		2.5	3.5	7	6.9	7.8	9.5	8.6	2	1.9	7.5	7.1	4.2	5.7	
E104	Sign Truck														
EQUIP HOURS REQUIRE	D	47.2	49.6	49.6	48.8	51.2	51.2	51.2	51.2	792.8	1161.6	1161.6	792	4308	86160
AVG UNITS REQUIRED:		0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	5.6	9.1	8.6	5.9	2.7	
E105	Water truck														
EQUIP HOURS REQUIRE	D	126.4	123.2	48.8	48.8	48	122.4	122.4	48	48	219.2	218.4	120.8	1294.4	19416
AVG UNITS REQUIRED:		0.9	1.1	0.4	0.4	0.4	1	0.9	0.4	0.3	1.7	1.6	0.9	0.8	
E106	Loader														
EQUIP HOURS REQUIRE	D	78.4	74.4	0	0	0	74.4	74.4	22.4	21.6	192	191.2	93.6	822.4	24672
AVG UNITS REQUIRED:		0.5	0.6	0	0	0	0.5	0.5	0.1	0.1	1.3	1.3	0.6	0.5	
E107	Patch truck														
EQUIP HOURS REQUIRE	D	576.0	376	509.6	376	505.6	637.6	372	106.4	106.4	0	0	106.4	3672	36720
AVG UNITS REQUIRED:		3.6	2.9	3.4	2.5	3.7	4.4	2.5	0.7	0.7	0	0	0.7	2.1	
E108	Air compressor														
EQUIP HOURS REQUIRE	D	110.4	110.4	110.4	110.4	106.4	106.4	106.4	106.4	106.4	0	0	106.4	1080	6480
AVG UNITS REQUIRED:		0.7	0.9	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0	0	0.7	0.6	
E109	Distributor														
EQUIP HOURS REQUIRE	D	.0	0	0	0	0	0	0	0	16	188.8	188	90.4	483.2	28992
AVG UNITS REQUIRED:		0	0	0	0	0	0	0	0	0.1	1.5	1.4	0.7	0.3	

RESOURCE		EQUIPMENT HOURS BY MONTH												TOTAL	TOTAL
CODE	NAME	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	NEED	COST
E110	Steel Roller														
EQUIP HOURS REQUIRE	D	78.4	74.4	0	0	0	74.4	74.4	0	16	17.6	17.6	17.6	370.4	7408
AVG UNITS REQUIRED:		0.6	0.6	0	0	0	0.6	0.6	0	0.1	0.1	0.1	0.1	0.2	
E111	Plate compactor														
EQUIP HOURS REQUIRE	D	.0	0	0	0	0	0	0	0	16	17.6	17.6	17.6	68.8	206
AVG UNITS REQUIRED:		0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0	
E112	Broom														
EQUIP HOURS REQUIRE	D	48.0	105.6	104.8	97.6	96.8	96.8	566.4	634.4	116.8	288.8	288	190.4	2634.4	92204
AVG UNITS REQUIRED:		0.3	0.8	0.7	0.6	0.7	0.7	3.7	4.2	0.7	2	1.9	1.3	1.5	
E113	Rub tire roller														
EQUIP HOURS REQUIRE	D	.0	0	0	0	0	0	0	0	0	171.2	170.4	72.8	414.4	8288
AVG UNITS REQUIRED:		0	0	0	0	0	0	0	0	0	1.2	1.1	0.5	0.2	
E114	Excavator														
EQUIP HOURS REQUIRE	D	24.8	25.6	3.2	3.2	26.4	71.2	48	88.8	44	44	44	44	467.2	21024
AVG UNITS REQUIRED:		0.2	0.2	0	0	0.2	0.5	0.3	0.6	0.3	0.3	0.3	0.3	0.3	
E116	Chipper														
EQUIP HOURS REQUIRE	D	51.2	51.2	48	48	44.8	44.8	45.6	45.6	45.6	45.6	45.6	45.6	561.6	14040
AVG UNITS REQUIRED:		0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.4	
E117	Chainsaw														
EQUIP HOURS REQUIRE	D	102.4	102.4	96	96	89.6	89.6	91.2	91.2	91.2	91.2	91.2	91.2	1123.2	3370
AVG UNITS REQUIRED:		0.7	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	
E119	Mower														
EQUIP HOURS REQUIRE	D	32.0	32	29.6	29.6	27.2	27.2	28	28	28	28	28	28	345.6	10368
AVG UNITS REQUIRED:		0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
E120	Spray Truck														
EQUIP HOURS REQUIRE	D	12.0	6.4	0	0	12	15.2	21.6	16.8	16.8	16.8	16.8	16.8	151.2	6048
AVG UNITS REQUIRED:		0.1	0.1	0	0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	
TOTAL COST															857499

Maintenance Management Program

COUNTY

CODE	RESOURCE NAME/UNITS	MATERIAL/OTHER REQUIREMENTS BY MONTH												TOTAL NEED	TOTAL COST
		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
M301	5/8" crush rock CY	1470	2815	1400	1220	1220	2615	1395	112	108	8664	8624	3744	33387	400644
M302	Cold Mix Ton	116.4	66.4	99.8	66.4	99.8	132.8	66.4	0	0	0	0	0	648	25920
M303	Crack filler Gal	1380	1380	1380	1380	1330	1330	1330	1330	1330	0	0	1330	13500	27000
M304	Sand CY	13.8	13.8	13.8	13.8	13.3	13.3	13.3	13.3	13.3	0	0	13.3	135	1215
M305	Tack oil Gal	0	0	0	0	0	0	0	0	300	330	330	330	1290	1032
M306	Hot Mix Class G Ton	0	0	0	0	0	0	0	0	300	330	330	330	1290	45150
M307	CRS2 or CMS Gal	0	0	0	0	0	0	0	0	0	321000	319500	136500	777000	77700
M308	Culvert Ft	0	0	0	0	0	0	0	112	108	104	104	104	532	6384
M311	Markers Ea	0	0	0	0	0	0	0	0	0	128400	127800	54600	310800	31080
M391	Misc materials \$	1220	878	12503	12497	12634	13006	13408	1776	1459	1458	1458	1448	73745	73745
M392	Misc sign material \$	260	272	272	272	296	296	296	296	18836	28056	28056	18816	96024	96024
TOTAL COST:														785894	

WORK SCHEDULING

Basic Concept

Each supervisor is expected to prepare short-term work schedules to organize available resources to achieve the annual objectives as well as to satisfy specific work needs. In general, the goals of work scheduling are:

- to do the correct amount of work;
- to do work when it should be done--in accordance with management priorities and decisions;
- to do the work where it should be done;
- to do the work with the best combination of labor, equipment, and materials; and
- to coordinate the work as necessary with other work groups for overall organization, effectiveness and efficiency.

This work scheduling process will enhance the supervisor's ability to:

- meet the work program objectives;
- make the best use of the limited resources;
- minimize any loss of time caused by poor or no planning; and
- coordinate and communicate work activities with other departments and divisions.

Work Scheduling Procedure

Every two weeks the schedulers prepare a written schedule outlining their work plans for the next two weeks. The Bi-Weekly Schedule is to be used. An example of the form is shown in the Figure below.

The work schedule should list those work items that you fully intend to do if all goes as planned. However, it is not likely that everything will go right every week. Equipment may break down or not be available for use. Weather conditions may force changes in the schedule. Conflicts with activities may require schedule adjustments. Schedulers should expect these situations to happen periodically and should prepare a list of alternative work activities that can be done if the scheduled work cannot be done as planned. The bi-weekly schedule form can be used for this list. Alternative activities should include:

- Low priority work that needs to be done eventually, but not during the next two weeks.
- Work that does not require special equipment or preparation.
- Work that can be done by smaller crews; this will minimize the need for major mobilization effort and allow flexibility in crew use.
- Work that will have minimal impact on other departments or divisions or the public if done without advance notice.

Scheduling Tips and Considerations

The scheduling procedure as outlined is not as rigid or foolproof as the step-by-step description implies. Bad weather, equipment breakdown, emergencies will disrupt a schedule--but part of the scheduling process is to be aware that these situations will occur and to be prepared to respond with little or no difficulty. Because of these situations, schedulers should not expect to accomplish all of the work scheduled. Generally, scheduling efforts can be considered successful and effective if 75 to 80 percent of

the scheduled work is completed as planned. Following are some additional hints or techniques to consider:

- It is usually best to prepare a schedule assuming everything will proceed as planned--weather will be okay, no equipment breakdown, etc. But, make sure a list of alternative work is available so that little time is wasted when adjustments to the schedule must be made.
- Try not to schedule too far ahead. Generally, one or two days before the start of the period will probably work out best.
- Take time to estimate the amount of work needed and the number of days required to do the work. Good estimates will improve the scheduling process significantly. The Planning Guidelines, field inspections, and experience all help the estimating process.
- Do not try to schedule all activities for specific days in the calendar part of the form. This is difficult at best, and chances are good that the daily plans will be disrupted at some time during the two weeks. For certain activities, however, where dates are set and critical, it is helpful to note these in the calendar.
- A two-week scheduling period is recommended for most applications. However, in some situations a weekly scheduling process may prove to be more effective. Either will work. Scheduling periods that are longer or shorter than one or two weeks tend to be less effective.
- To supplement the work schedule form it may be helpful to keep an informal "TO-DO" list, to avoid forgetting or losing important work items.

Coordination and Communication

All schedulers should meet regularly with the organization manager to review and discuss their plans for the next two weeks. A review meeting will provide an opportunity to coordinate work activities, use of special equipment, and personnel. At this session, the manager should provide guidance and direction for the work activity plans as needed and ultimately should approve the schedules.

As appropriate, the organization manager can then use the schedules to communicate the planned activities to the departments and divisions. In this manner, any conflicts between the organization and other units can be identified and minimized.

Work Assignment

The work scheduling effort will not be effective unless the schedule is used on a daily basis for assigning and dispatching work crews. Keep the following points in mind when making work assignments:

- Use the work schedule for making daily work assignments.
ALTERNATIVE WORK--Assign personnel to alternative work--from the alternative work list--if bad weather, equipment breakdown, or other situations prevent doing the scheduled work. Also rely on the alternative work list if the scheduled work is finished ahead of time.
- Keep current on the progress of scheduled and assigned work. It may help to make notes daily on the schedule--outlining the work done each day.
- Develop a regular routine of planning work for the next day ahead of time--either on the afternoon of the preceding day or early in the morning of the day the work is to be done.
- To the extent possible, assign the crew enough work for a full day. If this is not possible, make sure the crew knows what to do when they finish the first job.

In planning the work, pay special attention to the crew make-up required in comparison with the Planning Guideline for the activity. Make adjustments to the planned crew size, if needed, to satisfy specific needs, such as:

- longer or shorter travel distances than average;
- unusual requirements for traffic control;
- special safety considerations; or
- unusual job site requirements.

Review the work assignment with the crew leader in whatever detail is necessary to assure complete understanding of what is to be done, where, how, what personnel and equipment to use, and expected results. The Planning Guidelines and work procedures may be used as appropriate to supplement these instructions.

FIGURE 3-2

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EST. EMPLOYEE DAYS AVAIL. FOR WORK				SCHEDULED/ESTIMATED LEAVE DAYS IN PERIOD		WORK AND RESOURCE MANAGEMENT BI-WEEKLY SCHEDULE	
TYPE	NO. OF DAYS	TOTAL DAYS					
Perm.	_____ x _____	= _____			FOR PERIOD FROM _____ TO _____ (Date) (Date)		
Pt. Time	_____ x _____	= _____					
_____	_____ x _____	= _____					
_____	_____ x _____	= _____					
_____	_____ x _____	= _____					
TOTAL DAYS AVAILABLE _____			NET ESTIMATED AVAILABLE EMPLOYEE DAYS _____		MGMT. UNIT. _____ PLANNED BY _____ (Date) APPROVED BY _____ (Date)		

PLANNED WORK ITEMS				NOTES/COMMENTS ADDITIONAL INFORMATION	EST. PERSON DAYS REQUIRED	CALENDAR													
ACTIVITY		LOCATION																	
CODE	NAME					S	M	T	W	T	F	S	S	M	T	W	T	F	S
1																	1		
2																	2		
3																	3		
4																	4		
5																	5		
6																	6		
7																	7		
8																	8		
9																	9		
10																	10		
						TOTAL ESTIMATED PERSON DAYS REQUIRED													

WORK REPORTING

Work reporting involves the collection and evaluation of work data. From such reports, managers and supervisors are provided the information necessary to evaluate actual and planned work accomplishment and costs. Management actions based on these evaluations can be taken to help achieve the organization's objectives.

Work reports are completed by field personnel to record work accomplished and the related labor hours, equipment hours and materials used. These data are typically entered on a daily time card and compiled and entered into the county's data system.

Various evaluation reports are available for the managers and supervisors to use in analyzing and evaluating the progress toward the planned work program. These reports present key information concerning work accomplishments, costs, and utilization of labor, equipment and material. Such reports, can substantially improve the manager's and supervisor's knowledge of operations and maintenance activities and, as a result, they will be in a much better position to make decisions and take action on work program issues.

Guidelines for evaluating management information is presented below.

WORK MANAGEMENT INFORMATION EVALUATION GUIDELINES

PERFORMANCE INDICATOR	REPORTED RESULTS	AREAS TO INVESTIGATE	SUGGESTED MANAGEMENT ACTIONS
WORK ACCOMPLISHMENT	LESS THAN PLANNED	<ol style="list-style-type: none"> 1. Failure to report accomplishment 2. Failure to perform necessary work 3. Lack of need to perform work 4. Uncontrollable circumstances that hinder performance 5. Low priority 6. Ineffective or absence of planning and scheduling 	<p>Contact crew leader and correct error Supervision and training Confirm plan for work None</p> <p>None Supervision and training</p>
	GREATER THAN PLANNED	<ol style="list-style-type: none"> 1. Overestimating work accomplishment 2. Performing more work than necessary 3. Necessity for more work than planned 	<p>Contact crew leader and correct error Supervision and training Ensure authorization</p>
AVERAGE DAILY PRODUCTION	LESS THAN PLANNED	<ol style="list-style-type: none"> 1. Underestimated accomplishment 2. Unusually scattered work areas 3. Less than a full day's accomplishment due to weather or other uncontrollable circumstances 4. Excess quality or poor workmanship 5. Improper method and procedure 6. Less than normal work effort 7. Lack of or ineffective scheduling 	<p>Contact crew leader and correct error None None</p> <p>Supervision and training Supervision and training Supervision Supervision and training</p>
	GREATER THAN PLANNED	<ol style="list-style-type: none"> 1. Overestimated accomplishment 2. Unusually concentrated work area 3. Poor quality and/or workmanship 4. Non-standard method and procedure 5. Experimental operation 6. Work effort greater than normal 7. Used more material than required 	<p>Contact crew leader and correct error None Supervision and training Evaluate operation as potential new development None Praise Supervision and training</p>
CREW DAYS OR PERSON DAYS	LESS THAN PLANNED	<ol style="list-style-type: none"> 1. Failure to report all person-hours used 2. Failure to perform needed work 3. Work planned, but not needed 4. Using less than the planned crew size for the work 5. Production greater than planned 	<p>Contact crew leader and correct error Supervision and training Confirm plan for work Confirm planned crew size, supervision and training See above re average daily production</p>
	GREATER THAN PLANNED	<ol style="list-style-type: none"> 1. Reporting more person hours than used 2. Performing more work than planned 3. Using larger crew size than planned 4. Production less than planned 	<p>Contact crew leader and correct error Confirm plan, need for work, supervision and training Verify need for larger crew, confirm plan, supervision and training See above re average daily production</p>
COSTS	LESS THAN PLANNED	<ol style="list-style-type: none"> 1. Failure to perform needed work 2. Failure to report work data 3. Using less resources to do the work than planned 4. Using resources with lower rates or costs than planned 5. Production greater than planned 	<p>Supervision and training Contact crew leader and correct error Confirm planning guideline, supervision and training Confirm planning guideline, supervision and training Look at cost details: material costs may offset labor and equipment</p>
	GREATER THAN PLANNED	<ol style="list-style-type: none"> 1. Performing more work than planned 2. Reporting more work than completed 3. Using more resources to do the work than planned 4. Using resources with higher rates of costs than planned 5. Production less than planned 	<p>Confirm need for work, supervision and training Contact crew leader and correct error Confirm planning guideline, supervision and training Confirm planning guideline, supervision and training Look at cost details</p>